

A NEW HOSTPLANT RECORD FOR *STRYMON MARTIALIS* (LYCAENIDAE: THECLINAE) IN THE FLORIDA KEYS

Additional Key Words: *Cyclargus thomasi bethunebakeri*, *Caesalpinia bonduc*, *Camponotus*, Fabaceae, competition

Strymon martialis Herrich-Schäffer is a colorful hairstreak widely distributed throughout south Florida, the Bahamas, and western portions of the Greater Antilles (Smith et al. 1994). It is locally abundant on the south Florida mainland and in the Florida Keys. In the Keys it is a maritime species, being primarily restricted to coastal localities including tropical pinelands, hardwood hammock margins, beach dunes, scrubby shorelines, and adjacent open, disturbed sites. Within these habitats, *S. martialis* is found in close association with its only two documented larval hostplants, *Trema micranthum* (L.) Blume (Ulmaceae) and *Suriana maritima* L. (Surianaceae) (Minno & Emmel 1993; Slosson 1901). The developing larvae feed on host flowers, fruits and leaves (Scott 1986).

We regularly encountered the butterfly on many islands within the Lower Florida Keys while conducting status surveys for *Cyclargus thomasi bethunebakeri* (Comstock & Huntington) (Lycaenidae) during 2002 and 2003. The two butterflies fly together in Bahia Honda State Park, sharing much of the available beach dune and coastal strand habitat. *S. maritima* is found commonly across most of Bahia Honda supporting numerous populations of both larval and adult *S. martialis*. We have consistently recorded eggs and developing larvae of *S. martialis* during routine plant examinations.

On 9 March 2003, we observed a female *S. martialis* depositing a single egg on the terminal growth of *Caesalpinia bonduc* (L.) Roxb. (Fabaceae). Although the observation was initially dismissed as an ovipositional error, we repeatedly documented additional eggs on *C. bonduc* during subsequent visits to the park. All were located on new, terminal shoots and flower stalks, and often found adjacent to ova of *C. thomasi bethunebakeri*.

The suitability of *C. bonduc* as a viable larval host was later confirmed on 20 November 2003 when a late instar larva was discovered feeding on a developing flower stalk of a single plant adjacent to the entrance of the Silver Palm Nature Trail on the eastern end of the park. The larva was found in association with individuals of *Camponotus abdominalis floridanus* (Buckley) (Formicidae) (Figure 1) that repeatedly tended the larva and aggressively defended it when



FIGURE 1. Larva of *Strymon martialis* with *Camponotus abdominalis floridanus* ants on a flower stalk of *Caesalpinia bonduc*.

disturbed. Two additional larvae were located on a large patch of *C. bonduc* approximately 5.5 kilometers to the west of Bahia Honda on neighboring West Summerland Key. In this instance, both larvae were in close association with *Camponotus planatus* Roger (Formicidae) while feeding on a developing flower stalk. A single fourth instar larva was collected from the West Summerland Key site and reared in captivity on *C. bonduc* until pupation at our University of Florida laboratory in Gainesville, and a resulting male *S. martialis* eclosed on 21 December 2003.

The selection and use of *C. bonduc* represents a new hostplant record for *S. martialis*, and is the only member of the Fabaceae to be utilized. The additional observed interaction with *Camponotus* ants is the first report of myrmecophily for this abundant South Florida butterfly. Further studies are needed to determine to what extent and frequency *S. martialis* uses *C. bonduc* for oviposition and maturation to the adult in south Florida and the keys. Although eggs were found on both new terminal shoots as well as flower stalks, larvae were only observed feeding on developing flower buds and individual flowers indicating possible nutritional preferences or secondary plant chemical compound limitations.

If *C. bonduc* is selected on a regular basis, additional research is required to determine if such use could potentially lead to competition with *C. thomasi bethunebakeri* for availability of optimal host resources.

Secondarily, such use could disrupt existing ant interaction should workers preferentially tend the larger *S. martialis* larvae over *C. thomasi bethunebakeri* owing to the possibility of a more significant food reward.

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NEW LARVAL HOST PLANT FOR *LYCAEIDES MELISSA MELISSA* IN WISCONSIN AND MINNESOTA AND POTENTIAL THREAT TO *LYCAEIDES MELISSA SAMUELIS* (LYCAENIDAE)

Additional key words: Fabaceae, *Coronilla varia*, exotic species

The melissa blue, *Lycaeides melissa* (W. H. Edwards), utilizes a number of plants in the family Fabaceae as larval foodplants, with members of the genera *Astragalus* L. and *Lupinus* L. prominently represented (Scott 1986). The nominate subspecies of this butterfly occurs throughout western Minnesota, most commonly in remnants of the prairie that originally covered that part of the state, where native species of *Astragalus* appear to be the principal hosts. We have records from *A. crassicaarpus* Nutt., *A. adsurgens* Pallas, *A. missouriensis* Nutt., *A. flexuosus* Douglas, and *A. lotiflorus* Hook., as well as from a loco-weed, *Oxytropis lambertii* Pursh., a member of the same tribe in the Fabaceae as *Astragalus* (Gleason & Cronquist 1991). The butterfly is also sometimes found in the same part of the state in association with alfalfa, *Medicago sativa* L., in non-native habitat, e.g., along roadsides, in hayfields, or in pastures, where few prairie species are present (RPD, personal observation). Alfalfa is the principal larval host for some populations of *L. melissa* in western North America (Nice & Shapiro 1999). We report here the discovery of colonies of *L. m. melissa* in western Wisconsin and eastern Minnesota that are using another introduced legume as larval host, crown-vetch, *Coronilla varia* L. The use of this plant does not appear to have been previously reported. This is also the first reported occurrence of the nominate subspecies of *L. melissa* in Wisconsin.

In late July and early August 1994, CL encountered second-brood adults along a short stretch of high-voltage transmission line right of way in St. Croix County, Wisconsin, just northeast of the town of Hudson. Females were observed ovipositing on crown-vetch and on sweet clovers, *Melilotus alba* Medikus and *M. officinalis* (L.) Pallas. Several adults of both sexes

were collected in 1994 and on a subsequent visit on 25 July 2002. Females are typical *L. m. melissa*, with a fully-developed, continuous submarginal orange band on the dorsal forewing as well as the hindwing. Voucher specimens are deposited in the University of Minnesota Insect Collection, University of Minnesota, St. Paul.

RPD revisited the site 6 July and 12 July 2003 and found several second-brood larvae feeding on crown-vetch. All were feeding on leaves except for a probable second instar that was feeding on a very immature developing inflorescence. Early instars feeding on foliage mined out the mesophyll layer, leaving whitened "windowpanes" of epidermal tissue in the leaflets of the pinnately compound leaves. Late instars consumed epidermis as well, stripping most or all the leaflets from a leaf and leaving the rachis studded with the minute leaflet pedicels. These tell-tale signs of larval feeding were more readily found than the larvae themselves. Sweet clover plants were uncommon, and no interactions of females with these were observed. The only other legume noted at this site was round-headed bush-clover, *Lespedeza capitata* Michx., and there was no evidence of use of this plant. Adult activity, except for nectaring, was closely associated with crown-vetch patches. Three larvae were collected from the site on the 12 July visit and reared on potted crown-vetch plants. All developed into adults; two males and a female.

The power line right of way is a former railroad bed that is cut down a few feet below grade in the stretch occupied by the butterfly colony. The soil is a loamy coarse gravelly sand. At the time of the discovery, agricultural fields bordered the site on the north and a windbreak of elm and green ash trees bordered it on the south. The fields have subsequently been converted to